

CLAIMS

What is claimed is:

- 5 1. An air cooling system comprising:
 - at least one high performance cold plate of US 6411,512;
 - at least one circuit board assembly including electronic components mounted thereon, the electronic components protruding from a mounting surface of the circuit board assembly thermally attached to the cold plate;
 - 10 at least one semiconductor device to be thermally attached to the cold plate used on at least one side of the cold plate.
 - at least one plenum to deliver cold coolant to cold plate used and receive hot coolant returned from cold plate.
 - at least one circulating pump used in the system to receive hot primary coolant from plenum and deliver it to;
 - 15 at least one liquid to air heat exchanger to cool primary coolant received from the cold plate through the plenum and circulating pump.
 - all auxiliary components of a cooling system to be used in the system like at least; valves, sensors, pipes, gauges and any other components.
- 20 2. The cooling system assembly of claim 1, said cooling system further comprising ;
 - at least one cold plate.
3. The cooling system assembly of claim 1, said cooling system further comprising ;
 - at least one electronic module thermally attached to the cold plate.
- 25 4. Liquid cooling system comprising:
 - at least one high performance cold plate of US 6411,512;

at least one circuit board assembly including electronic components mounted thereon, the electronic components protruding from a mounting surface of the circuit board assembly thermally attached to the cold plate;

5 or at least one semiconductor device thermally attached to the cold plate used on at least one side of the cold plate.

at least one plenum to deliver cold coolant to cold plate used and receive hot coolant returned from cold plate.

at least one circulating pump used in the system to receive hot primary coolant from plenum and deliver it to;

10 at least one liquid to liquid heat exchanger to cool primary coolant received from the cold plate through the plenum and circulating pump.

all auxiliary components of a cooling system to be used in the system like at least; valves, sensors, pipes, gauges and any other components.

5. The cooling system assembly of claim 4, said cooling system further comprising ;

15 at least one cold plate.

6.. The cooling system assembly of claim 4, said cooling system further comprising ;

at least one electronic module thermally attached to the cold plate.

7. Space radiation cooling system comprising:

20 at least one high performance cold plate of US 6411,512;

at least one circuit board assembly including electronic components mounted thereon, the electronic components protruding from a mounting surface of the circuit board assembly to be thermally attached to the cold plate;

25 or at least one electronic module or semiconductor device thermally attached to the cold plate used on at least one side of the cold plate.

at least one plenum to deliver cold coolant to cold plate used and receive hot coolant returned from cold plate.

at least one circulating pump used in the system to receive hot primary coolant from plenum and deliver it to;